I claim:

1. A servopositioning system for a data recording system, comprising in combination:

   a) a linear data recording medium, upon at least a portion of which are written at least one amplitude-based servo signal, and at least one time-based servo signal; and

   b) circuitry, separately responsive to the amplitude-based servo and time-based servo signals, for producing respective position error signals from each servo signal.

2. The system of claim 1, in which the amplitude-based servo signal and the time-based servo signal are written to the medium on at least a portion of a common location of the medium.

3. The system of claim 2, in which the amplitude-based servo signal and the time-based servo signal are written to the medium in a common location of the medium.

4. The system of claim 1, in which the circuitry separates the amplitude-based servo and time-based servo signals from a composite input.

5. The system of claim 4, in which the amplitude-based servo and time-based servo signals have respective absolute amplitudes that are controlled to provide linearity to the entire system.

6. The system of claim 4, in which the circuitry further comprises crosstalk cancellation of the amplitude-based servo and time-based servo signals.

7. The system of claim 1, in which the amplitude-based servo signal comprises a sine wave recorded band surrounding erased windows, the edges of which form a series of servo track pitches.

8. The system of claim 1, in which the time-based servo signal comprises at least one sample, each sample comprising at least one pulse.

9. The system of claim 1, in which the time-based servo signal comprises at least one pulse positioned at a slant angle relative to the transverse direction of the medium.

10. The system of claim 1, in which the amplitude-based servo signal and the time-based servo signal are written on different physical locations of the medium.

11. The system of claim 10, in which the amplitude-based servo signals have a track width approximately equal to a write track width.

12. The system of claim 10, in which the time-based servo signals have track width much less than track pitch.

13. The system of claim 1, further comprising a servo controller having a seeking mode in which the servo controller depends primarily on the time-based servo signals.

14. The system of claim 13, in which the servo controller depends on position error signal produced by the amplitude-based servo signals at servo track boundaries.

15. The system of claim 1, further comprising a servo controller having a tracking mode in which a DC portion of position error signal is obtained from the time-based servo signal.

16. The system of claim 1, further comprising a servo controller having a tracking mode in which a high frequency portion of the position error signal is obtained from the amplitude-based servo signals.

17. A method of servopositioning for use with a data recording system, comprising:

a) writing upon at least a portion of a linear data recording medium at least one amplitude-based servo signal, and at least one time-based servo signal; and

b) producing respective position error signals from each servo signal.

18. The method of claim 17, comprising writing the amplitude-based servo signal and the time-based servo signal to at least a portion of a common location of the medium.

19. The method of claim 18, comprising writing the amplitude-based servo signal and the time-based servo signal to a common location of the medium.

20. The method of claim 17, further comprising separating the amplitude-based servo and time-based servo signals from a composite input.

21. The method of claim 20, in which the amplitude-based servo and time-based servo signals have respective absolute amplitudes that are controlled to provide linearity to the entire system.

22. The method of claim 20, further comprising reducing crosstalk between the amplitude-based servo and time-based servo signals.

23. The method of claim 17, further comprising writing the time-based servo signal at a slant angle relative to the transverse direction of the medium, and the method further comprises placing the amplitude-based servo signal in an azimuth null of the time-based servo signal.

24. The method of claim 17, comprising writing the amplitude-based servo signal and the time-based servo signal on different physical locations of the medium.

25. The method of claim 17, comprising writing the amplitude-based servo signals to have a track width approximately equal to a write track width.

26. The method of claim 17, comprising writing the time-based servo signals to have track width much less than track pitch.

27. The method of claim 17, further comprising a seeking mode in which the servo controller depends primarily on the time-based servo signals.

28. The method of claim 17, comprising using a servo controller that depends on position error signal produced by the amplitude-based servo signals at servo track boundaries.

29. The method of claim 17, further comprising using a servo controller that has a tracking mode in which a DC portion of position error signal is obtained from the time-based servo signal.

30. The method of claim 17, further comprising using a servo controller that has a tracking mode in which a high frequency portion of the position error signal is obtained from the amplitude-based servo signals.

31. A magnetic data read-while-write head, comprising:

a) two pairs of oppositely arranged time-based servo reading gaps and amplitude-based servo reading gaps that are larger than the time-based servo reading gaps; and

b) between the pairs of oppositely arranged servo reading gaps, matched thin film magnetoresistive data read/write gaps.

32. The head of claim 31, in which the amplitude-based servo reading gaps are sized for a servo track width approximately equal to a servo track pitch.

33. The head of claim 31, in which the servo reading gaps define gap lines for servo writing.

34. A servo writing head, comprising at least one set of time-based servo writing gaps arranged at a slant angle and at least one set of amplitude-based servo writing gaps, configured so that the head can simultaneously write pulses for a time-based servopositioning pattern and erase windows for an amplitude-based servo pattern.

35. The head of claim 34, in which there is at least one set of oppositely arranged time-based servo writing gaps so that the time-based servo pulses can be written in either forward or reverse direction.